The contributions of library and information services to hospitals and academic health sciences centers: a preliminary taxonomy

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Objectives: This article presents a taxonomy of the contributions of library and information services (LIS) in hospitals and academic health sciences centers. The taxonomy emerges from a study with three objectives: to articulate the value of LIS for hospitals and academic health sciences centers in terms of contributions to organizational missions and goals, to identify measures and measurable surrogates associated with each LIS contribution, and to document best practices for communicating the value of LIS to institutional administrators.

Methods: The preliminary taxonomy of LIS contributions in hospitals and academic health sciences centers is based on a review of the literature, twelve semi-structured interviews with LIS directors and institutional administrators, and a focus group of administrators from five academic, teaching, and nonteaching hospitals.

Results: Derived from the balanced scorecard approach, the taxonomy of LIS contributions is organized on the basis of five mission-level concepts and fifteen organizational goals. LIS contributions are included only if they have measurable surrogates.

Conclusions: The taxonomy of LIS contributions offers a framework for the collection of both quantitative and qualitative data in support of communicating the value of LIS in hospitals and academic health sciences centers.

INTRODUCTION

Many hospitals and academic health sciences centers have questioned their investment in library and information services (LIS). In the early 1980s, a number of hospitals ended their support of LIS when the Health Care Financing Administration (HCFA) terminated its requirement that these services be available in hospitals participating in Medicare and Medicaid. Today, the need continues for LIS directors in hospitals and academic health sciences centers to offer compelling evidence of the value of their services. Confronted with the possibility of reduced or eliminated funding,

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LIS directors seek to communicate effectively the contributions of their units to the success of the larger organizations.

Many LIS directors have relied on the requirement for library and information services among the accreditation standards for health care and health professions education as evidence of the value of their services. Yet, while many of these standards specify access to information resources, not all specify the need for the presence of LIS as a unit within the organization. For example, the Joint Commission on Accreditation of Healthcare Organizations includes information management among it standards but does not specify who should provide this service [1]. A number of the Accreditation Council for Graduate Medical Education's standards for residency programs specify the need for access to a library collection and bibliographic databases but fail to mention services that should be offered by librarians or other information professionals [2]. It can be expected that external factors such as HCFA's requirements and accreditation standards will continue to evolve in the direction of requiring access to resources rather than specifying services offered by librarians. Given this evolution, the value of LIS for an organization must be communicated to institutional administrators in terms of documented contributions to organizational success rather than solely in terms of compliance with external standards.

In recognition of the importance of effectively communicating the value of LIS, the Medical Library Association (MLA) has sponsored a study of the contributions of these services in hospitals and academic health sciences centers. Other initiatives have called for the collection of data related to library services in health care settings, primarily to support cross-institutional comparisons. Libraries in academic health sciences centers have contributed operational data to the Association of Academic Health Sciences Libraries (AAHSL) annually since 1974 [3]. Among these data are budget estimates and indicators of use, including circulation counts. A related data collection effort is currently planned for hospital libraries as part of a benchmarking initiative.

While they are helpful for answering many questions, the quantitative measures used for institutional comparisons are of limited utility for communicating the value of LIS for an organization. Reflecting on the limitations of the cross-institutional library statistics maintained by AAHSL, Matheson and Grefsheim note:

> From our own study . . . it is evident that all we are able to do now with the statistics is merely measure resource allocations. What is needed is a means to evaluate the effectiveness of that allocation by determining its worth and its impact on users. Alternative approaches or other statistics which can be used for evaluation must be found . . . . Until either more meaningful, standardized data are collected or some correlation between the statistics and library objectives can be ascertained, it is our opinion that a valid analysis of a library's program can only come from a study of internal criteria. Analyses must therefore be assessments of the validity of the goals and objectives the library as established within its institutional and environmental framework. [4]

Comparing resource allocations and operational data across libraries is useful in many respects. The focus of the current study, however, is on collecting the data necessary for communicating the value of LIS toward the successful operations of a specific organization.

In this article, the researchers provide an overview of the MLA-funded study and describe the development of the taxonomy of the contributions of LIS for hospitals and academic health sciences centers. Separate publications will be devoted to the review of the relevant literature and to the application of the taxonomy in specific settings. The paper on applying the taxonomy will also describe the measures and measurable surrogates that may be used as evidence of each contribution.

BACKGROUND OF THE STUDY

In its request for proposals, MLA posed two questions as objectives for the study: (1) What is the value of using library and information services to the hospital or academic health sciences center? and (2) What kinds of information do institutional administrators recognize as valid measures of the contributions that librarians, through the provision of services, make to the bottom line of the organization?

The study addresses these questions in five phases:

- Phase 1: literature review. The researchers began the study with a review of the literature related to the value of LIS. This review included searches conducted in the literatures of multiple disciplines, including business and management (ABI/Inform), health services research (HealthSTAR), health care (MEDLINE), and library and information science (Library Literature and LISA). The questions guiding the review were:
  – How do administrators measure the performance of units?
  – How can the contributions of intangibles be measured?
  – How can the contributions of library and information services be measured?
- Phase 2: development of initial taxonomy. The researchers developed an initial taxonomy of the contributions of LIS in hospitals and academic health sciences centers based on results of the literature review. It should be noted that the term ''taxonomy'' is not used in the traditional biological sense; that is, the term is used to refer to a polyhierarchical classification in which individual components may appear more

than once. This understanding of the term has become common in library and information science. Following the literature review, the validity of the initial taxonomy was tested during two pretest interviews with LIS directors and institutional administrators in a community hospital and an academic health sciences center. The pretest interviews provided insight into the taxonomy as well as the interview process itself. The taxonomy was modified and validated further based on findings from the interviews and the focus group, subsequent phases in the study.

- Phase 3: interviews. Twelve semi-structured interviews were conducted with LIS directors and institutional administrators in three hospitals and three academic health sciences centers. The goals of these interviews were to modify and validate the taxonomy as well as to collect data on best practices for communicating the contributions of LIS. The three factors determining the selection of interview sites were location, institutional reputation, and institutional support of LIS. Consideration of interview sites was limited to those located in the mid-Atlantic region. Institutional reputation was defined as appearance on the *U.S. News & World Report*'s annual list of best hospitals [5] or the HCIA-Sachs list of top 100 hospitals [6]. Institutional support of LIS was defined as the library's total budget normalized by the number of beds in the affiliated hospital.
- Phase 4: hospital administrators' focus group. As in the interview phase, the goals of the focus group of hospital administrators were to modify and validate the taxonomy of LIS contributions and to collect data on preferences in methods of communicating the value of LIS. Held in conjunction with the annual meeting of the Maryland Hospital Association on June 8, 2001, the focus group included five administrators from academic (university-affiliated), teaching (not university-affiliated), and nonteaching hospitals. While the interviews were with institutional administrators who supervise LIS directors, the focus group provided the opportunity to collect data from other institutional administrators.
- Phase 5: questionnaires. The final phase of the study will entail administering Web-based questionnaires to LIS directors and institutional administrators with the goal of collecting data about the validity of the contributions of LIS specified in the taxonomy. The questionnaire will be administered to LIS directors at institutions in the United States belonging to the Association of American Medical Colleges, as well as LIS directors identified from the membership of MLA's Hospital Libraries Section. Each LIS director will nominate an institutional administrator for participation in the questionnaire phase of the study. Questionnaire respondents will rate their level of agreement about each contribution, based on their understanding of what constitutes an ideal library or information center. Results of the study will shed light on possible differences in contributions by setting.

Small sample sizes and social desirability bias are potential limitations of this study. The preliminary taxonomy that has been developed on the basis of the interview and focus group data will be validated with a larger sample in the questionnaire phase of the study. The possibility of a social desirability bias among interview and focus group participants can be tied to MLA's sponsorship of the study and the researchers' affiliation with a library and information science educational program.

DEVELOPMENT OF THE TAXONOMY

To develop the taxonomy of LIS contributions in hospitals and academic health sciences centers, the researchers first looked at approaches for identifying and measuring value currently being used in various organizational environments and described in the literature. Two basic models were identified: a business model focused on quantifiable, firm-level performance measures and a service model focused on qualitative, user-centered measures. Each of these approaches has strengths and limitations.

The traditional business model is based on quantifying the benefit or impact of a product or unit on the bottom line of the organization, either in terms of the profit that it contributes or of the service it provides. Two well-known financial concepts used to measure value to an organization are return on investment (ROI) and cost/benefit analysis [7]. Both techniques rely on the ability to quantify the actual costs of the product or unit being measured as well as the cost savings or cost benefits that are produced. Problems arise with both of these approaches when applied to units providing intangible services. As in the case of library and information services, isolating the contribution or impact of the service provided in terms of a specific outcome is often difficult, if not impossible [8]. It is also difficult, and very cumbersome, to identify the costs of individual services, because often there is no single, identifiable product associated with the work performed by the library staff. In the absence of a tangible product with a quantifiable return or benefit, libraries and information centers typically rely on anecdotal evidence of time or effort saved to demonstrate their value to the organization [9]. Although these savings may be very real, they are hard to quantify in terms of a cost/benefit analysis.

On the other hand, the traditional LIS model has frequently focused on measuring the value of LIS services to individual users rather than on their impact at an institutional level. These measures have been based largely on individual users' estimates, such as the amount of time or money saved as a consequence of using LIS [10, 11]. The validity of much of these

data may be questioned, however, to the extent that they are based on responses to hypothetical questions such as, ''How much time *would* you have spent?'' or ''How much money *would* you have paid?'' Further, individual perceptions or estimates do not necessarily translate into measurable benefits to the bottom line for an organization; that is, these measures are more likely to reflect users' beliefs or their personal satisfaction rather than directly quantifiable benefits to the organization. This is more deeply complicated by the fact that many sources or channels of information may be used to address the same need, and isolating the specific contribution associated with LIS in such instances is impossible. Attempts to measure the contributions of LIS within this mix of channels have been made by asking users to compare the information received from the library or resource center with that received from other channels [12]. Unfortunately, research has shown that in many cases LIS may not be one of the most frequently used channels for information, even when LIS-derived information is of higher quality [13].

For the purpose of this study, the researchers identified institutional indicators of value that could be tied to specific, measurable outcomes such as improved clinical care. For each indicator of value, the researchers then focused on what contributions might be made by LIS to the bottom line or success of the parent organization. The researchers used the concept of supporting the organizational mission as the ultimate measure of value. However, because this support was not readily quantifiable, an intermediate step was taken to identify a measure reflecting the level of contribution. Unlike value, which is generally measured in monetary terms, the level of contribution could be measured by the percent of a population using a given service, for example. That is, to the extent that LIS can be shown to make a contribution to achieving any of the organization's mission-related goals, it is deemed to be contributing to the bottom line, even if the specific benefit of the contribution cannot be isolated or measured in monetary terms.

Using the concept of supporting the organizational mission as the ultimate measure of value is based on an approach to measuring organizational performance called the ''balanced scorecard'' [14]. This approach combines both quantitative and qualitative measures to provide a ''balanced'' picture of an organization's performance. This approach to performance measurement focuses on the following four mission-level perspectives.

- Financial perspective: Measures that reflect the financial perspective of organizational performance include return on employed capital, profitability, and shareholder value.
- Internal business perspective: When considering the internal business perspective, administrators focus on measures of the performance of internal operations generally and core competencies specifically. Internal business issues common in the corporate arena include design productivity, manufacturing excellence, and new product introduction.
- Customer perspective: How a company performs from the perspective of its customers is a significant priority for administrators. Issues related to the customer's perspective include time, quality, performance, and cost.
- Learning and innovation perspective: An organization's ability to improve, learn, and innovate is tied directly to its long-term value. Measures that are typically applied to this perspective in the corporate sector include a company's ability to develop and introduce new products rapidly as well as the percent of sales tied to new products.

These perspectives form a framework for transforming an organization's mission and goals into a coherent set of performance measures by focusing on factors that are considered essential for the organization's success. This technique, based on identifying ''critical success factors,'' has been used in a wide range of organizations. One of the strengths of this approach is that it allows each organization to choose those factors that are most relevant in its individual environment.

A primary reason the researchers selected the balanced scorecard as an initial framework for the present study was the inclusion of both quantitative and qualitative data as measures of performance. Initially, the four balanced scorecard perspectives were used to organize the framework within which the researchers sought to develop the taxonomy of LIS contributions in hospitals and academic health sciences centers. The financial perspective was equated with the administrative operations of the hospital or academic health sciences center; the internal business perspective was tied to clinical care objectives; the customer's perspective was linked to the users of the hospital's or academic health sciences center's services, including both patients and students; and the learning and innovation perspective was used to represent the extent to which the hospital or academic health sciences center adopts new technologies and practices or pursues original research.

The development of the taxonomy was iterative. Initially, contributions and indicators of value associated with LIS identified from the literature were organized into the four perspectives of the balanced scorecard framework. Table 1 illustrates the relationship between the LIS contributions identified in the literature and the four perspectives of the balanced scorecard framework. As can be seen in the table, the relationship between the contributions and the perspectives is one to many; that is, several contributions can map to more than one of the balanced scorecard perspectives.

Contributions were also identified from the pilot interviews with LIS directors and institutional admin-

Table 1
Correspondence between LIS contributions identified in the literature and the balanced scorecard perspectives

LIS contribution	Balanced scorecard perspectives			
	Financial	Internal business	Customer*	Learning and innovation
Save time [15–17]	■			
Save money [18–20]	■			
Avoid unnecessary tests [21–23]	■	■	■	
Avoid hospital admissions [24–26]	■	■	■	
Reduce length of hospital stay [27–29]	■	■	■	
Improve management decisions [30]		■		
Increase productivity [31]		■		
Improve quality of service provided [32]		■	■	
Improve clinical decisions [33–35]		■	■	
Avoid patient mortality [36–38]		■	■	
Increase patient satisfaction [39]			■	
Reduce frustration and stress associated with information overload [40]			■	
Refresh memory [41]			■	■
Substantiate prior knowledge [42]			■	■
Provide new knowledge [43]			■	■
Stay current [44]			■	■
Support research-related needs [45]				■

* The balanced scorecard's customer perspective may be seen as representing both institutional customers and LIS customers.

istrators. Several of these related to the learning and innovation perspective, such as encouraging the adoption of new technology and practices.

The criterion for a contribution's inclusion in the taxonomy at this stage of its development was whether it could be measured or had a measurable surrogate. If not, it was eliminated. During the pilot interviews, the issue arose of the ability to isolate LIS contributions from other contributors in the organization. On the basis of data collected in the pilot interviews, a number of contributions were eliminated or merged with others to form broader contributions. Reducing length of stay, avoiding hospital admissions, and avoiding unnecessary tests were removed from the taxonomy. Pretest interviewees noted that there are significant intervening variables for each of these and no valid way of measuring the LIS contribution. Each of these, however, could be understood as a specific example included within the definition of an organizational goal. For example, ''reducing length of stay'' could fall within the organizational goal of providing excellent clinical care.

Finally, the balanced scorecard perspectives were modified before moving into the interview phase of the project. It became evident that the generic categories of the balanced scorecard did not adequately correspond to the missions of hospitals and academic health sciences centers. Furthermore, as seen in Table 1, LIS contributions in these settings did not correspond well with the balanced scorecard perspectives.

Mission concepts identified from the pilot interviews and from institutional document analyses replaced the balanced scorecard perspectives.

- ''Clinical care'' was added as a mission concept and included elements of learning previously included in the learning and innovation perspective.
- ''Management of operations'' replaced the internal business perspective.
- ''Constituent needs'' replaced the customer perspective, as it better represented the idea of institutional constituents, which was found to be confused with LIS customers during the pretest interviews.
- ''Research and innovation'' replaced the learning and innovation perspective.

The first perspective, clinical care, is a primary focus of hospitals and academic health sciences centers. The second and third perspectives, management of operations and constituent needs, are more generic and applicable in multiple industries. Similarly, the last perspective, research and innovation, is applicable in many industries, though not all.

REFINEMENT OF THE TAXONOMY

As expected, the initial taxonomy underwent further transformations, evolving as the data gathering progressed in the interview and focus group phases of the study. As described above, twelve semi-structured interviews were conducted with LIS directors and institutional administrators at three hospitals and three academic health sciences centers. Following the interviews, a focus group of five administrators was conducted. Focus group participants were from university-affiliated, teaching (not university-affiliated), and nonteaching hospitals.

During the interviews, it became evident that ad-

ministrators were interested in indicators of value for the library but were not pressing for them. Furthermore, the emphasis of LIS in hospitals and academic health centers has been on clinical needs, not administrative needs. However, one of the interviewees indicated that administrators should be considered LIS customers. Administrators and library directors confirmed the validity of the indicators included on the taxonomy. Differences in emphasis became apparent during the interviews. While both groups placed the highest value on clinical care, setting seemed to influence the importance of education, research, and service.

Following the administrators' focus group, the taxonomy's framework was modified again, largely to simplify its organization. The most significant changes were the integration of customer satisfaction into the other components and the creation of the service mission concept. Education emerged as a separate mission concept, because it appeared in all of the mission statements in some form and was emphasized during interviews as well as the focus group. While all the hospital interview sites hosted residency programs, the educational mission concept can logically be extended to continuing professional education in nonteaching hospitals.

STRUCTURE OF THE TAXONOMY

Following the changes based on the interview and focus group data, the taxonomy currently organizes the contributions of LIS in hospitals and academic health sciences centers in five broad concepts corresponding to the parent organizations' missions. These five concepts that reflect the missions of hospitals and academic health sciences centers are:

- clinical care
- management of operations
- education
- research and innovation
- service

Within each mission-level concept are multiple organizational goals. Organizational goals were derived from an analysis of the mission statements of the participating organizations, from discussions with administrators, and from the literature. In some cases, organizational goals were identified inductively from LIS contributions that had been identified and did not fit within an existing organizational goal. This occurred, for example with the organizational goal of ''increase profitability,'' which was identified on the basis of the LIS contributions relating to saving time, reducing organizational expenditures, increasing organizational productivity, and contributing to lower costs of patient care.

The structure of the taxonomy of LIS contributions is now based on the five mission-level concepts that include a total of fifteen organizational goals:

- clinical care
  - provide excellent clinical care
  - promote clinical learning
- management of operations
  - make sound management decisions
  - increase profitability
  - meet accreditation standards
  - reduce corporate risk
  - provide an organizational learning environment
  - foster satisfaction among current staff
  - foster institutional attractiveness
- education
  - provide excellent educational programs
  - provide resources and services necessary for teaching and learning
- research and innovation
  - foster research
  - adopt innovative technologies and practices
- service
  - improve lives of patients and families
  - improve lives of community members

For each organizational goal, the taxonomy identifies specific LIS contributions. Each contribution describes how an organizational goal may be advanced by LIS. The following takes as an example the first mission concept, ''clinical care,'' and its first organizational goal, ''provide excellent clinical care.''

- clinical care (mission concept)
  - provide excellent clinical care (organizational goal)
    - support informed and timely clinical decision making (LIS contribution)
    - support the development of policies and procedures relating to clinical care (LIS contribution)

As illustrated in this example, the taxonomy ties LIS contributions directly to organizational goals, which in turn are linked to organizational mission concepts.

It is important to note that individual LIS contributions may appear in multiple organizational goals and that specific measures may serve as evidence of multiple LIS contributions. For example, the LIS contribution ''provide physical environment conducive to studying and learning'' supports the organizational goals of providing a learning environment and fostering satisfaction among staff in the organization.

As mentioned above, the taxonomy includes only those LIS contributions that are measurable or have a measurable surrogate. Multiple measures or measurable surrogates will be identified and grouped within each LIS contribution. For example, two measures of the LIS contribution of providing information in support of clinical decision making are:

- LIS usage by user group: clinical staff (where clinical staff is one specific user group for which usage statistics are gathered)

■ clinicians' satisfaction with LIS (based on data collected from surveys, focus groups, and interviews)

As seen in this example, the evidence of LIS contributions may be collected by multiple methods and may include both quantitative and qualitative data. Usage by user group may rely on a library's operational statistics, while the satisfaction of clinical staff may be assessed quantitatively through responses to Likert-scale questions or qualitatively through responses to open-ended questions in surveys, interviews, or focus groups. As will be discussed in the article on applying the taxonomy, the selection of measures to employ will depend on the organizational mission concepts and goals given priority in the specific setting. This approach to communicating the value of LIS underscores the importance of an ongoing collection of data as evidence of LIS contributions to an organization's success.

PRELIMINARY TAXONOMY

The current version of the taxonomy (Appendix) reflects the definition of the value of LIS in terms of contributions to institutional missions and goals. The perspectives included here no longer represent the initial framework of the balanced scorecard but rather a transformed framework based on the missions of hospitals and academic health sciences centers. However, the key concepts inherent in the balanced scorecard remain core to the taxonomy. The financial perspective has been incorporated into one of the mission concepts, ''management of operations,'' specifically in the organizational goal ''increase profitability.'' The other organizational goals under management of operations reflect the nonclinical internal business perspective.

Evidence of the customer perspective appears throughout the taxonomy. One interesting complication is that the term ''customer'' has a dual meaning in the context of LIS. There are LIS customers, generally clinical and administrative staff in hospitals. From the organizational perspective, however, patients and students are also customers. Because the taxonomy aims to reflect the organizational perspective, it has to reflect this broad range of customers for hospitals and academic health sciences centers. The ''service'' mission concept clearly addresses the notion of satisfaction of the various external constituencies: patients, families, and members of the community. The satisfaction of clinical staff is included in the ''clinical care'' mission concept. Finally, students are considered under the ''education'' mission statement.

In the hospital and academic health sciences environments, the learning and innovation perspective of the balanced scorecard seems best divided into two mission concepts: ''education'' and ''research and innovation.'' Education is a significant mission concept not only for academic health sciences centers, but also for other hospitals in the context of graduate medical education and continuing medical education.

It is important to recall that not all mission concepts, goals, and LIS contributions are relevant for all hospitals and academic health sciences centers. The taxonomy is meant to suggest an array of options for gathering data to support communicating LIS contributions toward an organization's mission and goals. When applying the taxonomy, it is important to consider which mission concepts, goals, and LIS contributions are most relevant for a given setting. LIS directors should identify the most meaningful contributions to measure and communicate. One of the interviewed administrators suggested, for example, that three to five sound contributions would be sufficient evidence of the value of LIS for the organization. Furthermore, the taxonomy is expandable. Additional mission concepts may be added, as well as additional organizational goals for a given mission concept. In essence, the taxonomy serves as a framework for developing a customized set of key factors that are important to a specific organization.

CONCLUSIONS

In this article, the researchers have introduced a new approach to understanding the value of LIS in terms of its contributions to an organization's mission and goals. This approach, in contrast to both the traditional business models and the approaches that focus on individual users evident in much of LIS research, advocates the collection of both quantitative and qualitative data as indicators of LIS contributions to organizational success. Using the balanced scorecard as an initial framework, this approach reflects the necessity for institutional administrators to monitor a variety of critical success factors relevant to an organization's mission and goals. Five mission concepts have been identified for institutional administrators in hospitals and academic health sciences centers: clinical care, management of operations, education, research and innovation, and service.

Based on findings from a review of the literature, a series of interviews with LIS directors and institutional administrators, examination of institutional documentation, and a focus group of hospital administrators, the researchers have developed a taxonomy of LIS contributions that are generally relevant to the missions and goals of hospitals and academic health sciences centers. While not all the mission concepts and organizational goals identified in the taxonomy will be relevant to every hospital and academic health sciences center, they do offer an array of options for communicating the contributions of LIS in these settings. In addition, the process of developing a taxonomy of LIS value indicators based on organizational missions and goals could be applied in other fields.

The next steps in this study include developing and administering the Web-based questionnaires that will collect data from LIS directors and institutional administrators about the validity of the LIS contributions. Results of this final phase in the study may result in further changes to the taxonomy and will inform the choice of which contributions to pursue when applying the taxonomy in specific settings.

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APPENDIX

Preliminary taxonomy: the value of library and information services (LIS) in hospitals and academic health sciences centers

Organizational Mission Concept	Organizational Goals	LIS Contributions
Clinical care	*Provide excellent clinical care*	
		Support informed and timely clinical decision making. Support the development of policies and procedures relating to clinical care.
	Promote clinical learning	
		Provide new knowledge and substantiate prior knowledge about clinical practice. Inform users about current developments in clinical practice.
Manage operations	*Make sound management decisions*	
		Support informed and timely management decisions.
	Increase profitability	
		Provide resources and services that save organizational staff time. Provide resources and services that increase organizational staff productivity. Provide resources and services that reduce organizational expenditures. Provide resources and services that lower costs of patient care.
	Meet accreditation standards	
		Maintain information required for responses to accrediting bodies (LCME, ACGME, JCAHO). Meet accreditation standards related to information management (LCME, ACGME, JCAHO).
	Reduce corporate risk	
		Disseminate information on best practices. Increase corporate compliance (assist in compliance with health care regulations and copyright restrictions).
	Provide an organizational learning environment	
		Provide leadership in information management for the organization. Provide information about developments in information technologies and resources. Support professional development of staff. Provide physical environment conducive to studying and learning.
	Foster satisfaction among current staff	
		Support professional development of staff. Provide physical environment conducive to studying and learning. Reduce frustration and stress attributed to information overload.
	Foster institutional attractiveness	
		Enhance institutional attractiveness to prospective clinical staff. Enhance institutional attractiveness to students. Provide physical environment conducive to studying and learning. Provide easy and convenient access to information resources.
Education	*Provide excellent educational programs*	
		Enhance educational programs. Promote academic excellence. Promote satisfaction with quality of educational programs.
	Provide resources and services necessary for teaching and learning	
		Support the identification of information resources to be used for instruction. Provide easy and convenient access to information resources. Provide information about developments in information technologies and resources. Support preparation for licensing, certification and re-certification examinations.
Research and innovation	*Foster research*	
		Support research-related needs. Provide information necessary to prevent duplication of research efforts. Participate on research grants.
	Adopt innovative technologies and practices	
		Support development of innovative technologies and practices. Support the use of innovative technologies and practices. Disseminate information about developments in information technologies and resources. Provide leadership in information management for the organization.
Service	*Improve lives of patients and families*	
		Support the education of patients and families on health-related issues. Educate patients and families about information resources and the evaluation of health information.
	Improve lives of community members	
		Support the education of community members. Educate community members about information resources and the evaluation of information.